0004

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor
Kathleen Clarke
Executive Director
Lowell P. Braxton
Division Director

1594 West North Temple, Suite 1210
PO Box 145801
Salt Lake City, Utah 84114-5801
801-538-5340
801-359-3940 (Fax)
801-538-7223 (TDD)

January 26, 1999

TO: Pamela Grubaugh-Littig, Permit Supervisor

THRU: Joe Helfrich, Permit Supervisor

FROM: Robert Davidson, Soils Reclamation Specialist RAD

RE: EARTHCO - Bond Release and New Proposed Topsoil Borrow Area, Nevada Electric Investment Company, Wellington Preparation Plant, ACT/007/012-97BR, Folder #2, Carbon County, Utah

SUMMARY:

The present submittal received on November 16, 1998, and subsequently on December 11, 1998, requests a change of post-mining land use for Areas B, C and portions of H to industrial use and further identifies a proposed topsoil borrow Area I. This gives the Division the opportunity to formally revisit the sources of best available soil borrow with the least amount of disturbance to achieve reclamation.

Since July of 1996, the Division has been working with NEICO to locate borrow material.

- The Division's July 25, 1996 Technical Analysis (TA) for the Wellington Mine Reclamation Plan (MRP) contained the following deficiency: ***R645-301-533.252,*** *supply the needed amount of borrow material to meet the minimum regulatory requirement of 4 feet of the best available, nontoxic and noncombustible material.*

- On December 23, 1996, soil Borrow Areas "A" and "B" were approved for soil borrow and were incorporated into the MRP.

- On June 20, 1997, NEICO's Midterm submittal requested that the application for using Soil Borrow Areas "A", "B", and "C" (Plate G9-3511) be withdrawn from the MRP based on the imminent sale and industrial site development by Earthco.

- On February 18, 1998 the Mid-Term submittal was approved, Borrow Areas "D", "E", "H", and "G" were approved as soil borrow and Areas A, B, and C were released as soil borrow.

The background information presented above demonstrates that the reclamation plan for the Wellington Preparation Plant has varied according to the NEICO business plan and that the Division has attempted to accommodate NEICO in all their propositions.

This latest submittal requests that soil borrow Areas B, C and portions of H be released from bond with the intention of selling the land for industrial use. In this transaction, the topsoil resource from Areas B and C would be forever lost. The Division will base it's decision on soil borrow approval on the following:

1. Best available material within the permit area to support vegetation in terms of soil quality;

2. Minimize surface disturbance by disturbing the smallest practicable area in relation to borrow site access and proximity to the coarse refuse pile;

3. Demonstrate prompt vegetation establishment and maintenance for minimizing surface erosion; and

4. The Division's mission statement requires the promotion of coal mining in an environmentally sound manner.

The other issue raised by this submittal is the disposition of the coal refuse material on the surface in the main plant area.

TECHNICAL ANALYSIS:

ENVIRONMENTAL RESOURCE INFORMATION

SOILS RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.21, 817.200(c); R645-301-220, -301-411.

Analysis:

Section 2.22 provides a detailed history of soil sampling in the topsoil borrow areas D, E, F, G, H, and I with soil survey studies presented in 9 different sampling periods. These periods are presented with soil profile descriptions and laboratory analyses.

Section 2.41 contains a detailed account for soil resources available as soil borrow for reclaiming the Wellington site. The following additional environmental resource information is provided with this current submittal:

- A soil survey was performed for Area I. A "Soil Investigation Report" is provided in Section 2.41 for Area I, approximately 7.55 acres located in the SW corner of the permit area. Map G9-3511 shows the location of Area I and the location for each soil pit.

The Area I soil is described as Stormitt series, a loamy-skeletal, carbonatic, mesic Ustic Haplocalcid. The A horizon and Bw horizon is about 9 inches thick (17% rock fragments, primarily gravels) Underlying this is the calcic Bk horizon, about 17 inches thick (36% rock fragments, gravels and cobbles). The C horizon averages 7 feet in depth (59% rock fragments, gravels and cobbles), with a texture variously described as sandy loam, sandy clay loam, and clay loam. Rooting depth was found to be limited to the upper 30 inches of soil (i.e. the A, Bw and Bk horizons).

Stormitt series is in the Semidesert Gravelly Loam range site. The average annual precipitation is 8 to 10 inches. The hazard of water erosion is medium. There was 23% plant cover noted at the sites of excavation. Plants such as Sagebrush, Galleta grass, Shadscale, Prickly Pear cactus, Indian Ricegrass, and Rabbitbrush were noted. The suitability of Stormitt series for rangeland seeding is poor. The main limitations are the stoniness of the soil and the low annual precipitation (Jensen and Borchert, 1988).

Nine sites were excavated and described for Area I. Three sites were sampled by horizon: W3, W5 and W7; and, the remaining six sites were sampled by combining the subsurface horizons. Sites W3, W5, and W7 illustrate the quality of the soil which naturally occurs in the germination and growth medium. In the top 8 -10 inches the pH is 7.8 to 8.2; the EC is 0.63 to 1.09 mmhos/cm; the SAR is 1.6 to 4.8; the texture was noted as CL, SL, and SCL; percent organic matter is 0.8%; nitrogen varies from 1.2 to 3.0 mg/L; and water holding capacity is 0.1 in/in. In the lower horizons, the SAR jumps to levels of 5.8 to 13; the available water holding capacity is reduced to poor levels below 0.05 in/in; and the EC rises to the fair to poor range with values from 4.11 to 11.0.

The submittal concludes that with the exception of site W7, all soils will be suitable according to the Division's guidelines, after mixing has occurred. The Guidelines for Topsoil and Overburden[1] provide an evaluation of soil for vegetative root establishment. When the survey results are compared to this table, the Division must take exception to the conclusion reached by the Permittee as follows:

- Even after mixing the samples, a high conductivity value was noted for W1 (7 - 60") and W2 (15 - 48"), with W4, W6, W7 and W8 composite samples approaching the poor value of 8.0 mmhos/cm.

- Poor to Fair SAR values were noted in the composite samples of W1 (7 - 60" and 60 - 123"), W2 (15 - 48" and 48 - 84"), W4 (9 - 72" and 72-120"), W6 (24 - 60" and 60 - 114"), W8 (48 - 84"), W 9 (48 -114").

- Composite samples which rated poorly for available water holding capacity (based

[1]Leatherwood, J., and Duce, D., 1988. Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining. State of Utah Department of Natural Resources, Division of Oil, Gas and Mining.

upon the assumptions listed on page 279 of sec. 2.22 of the MRP) were sites W1 (60 - 123"), W2 (48 - 84"), W3(72 - 108"), W4 (72-120), W6 (60 - 114"), W8 (48 - 84"), and W9 (48 - 114"). The lower organic matter in the subsurface horizons would impact the available water capacity in a negative fashion as well.

The Stormitt soil is a soil that is saline just below the surface horizons and sodic at its depths. The deeper materials would be used to reclaim the disturbed area and the surface horizons would be returned to the borrow site for reclamation. This presents a **two-fold problem**.

- **First**, the reclamation of the borrow site would not be easily accomplished, given the amount of rain and the potential for erosion during storm events prior to adequate vegetation reestablishment.

- **Second**, the Stormitt soil material is not the best available for reclamation of the disturbed area when compared to Greybull soil series.

Soil from the Greybull series is currently approved within the Wellington MRP as the best available material within the permit area. In fact, the Greybull series is a source of quality substitute topsoil material that presents little problem for reclamation of the disturbed area (see NEICO-5, NEICO-6, C-1, and the SCS Soil Survey of the Carbon Area, Utah). As noted in section 2.22, page 97, 98, 108, and 122 of the MRP, the Greybull series (represented by the sample NEICO 6) is a fine-loamy, mixed, calcareous, mesic Typic Torriorthent. There are 10 to 15% gravels in this silty clay loam/ clay loam soil. The pH ranges from 7.9 to 8.1, the SAR values are 1.3 to 2.2; the EC ranges from 1.0 to 2.9 mmhos/cm.

In conclusion, the proposed Borrow Area I does not meet the Division's criteria as the source for best available material (substitute topsoil) within the permit area. In order to achieve successful reclamation of lands affected by coal mining activities, use of the proposed soil borrow area needs to be in accordance with state regulations to ***minimize surface disturbance*** *and to* ***disturb the smallest practicable area*** *at any one time. Greenhouse studies or field trials, or equivalent methods are needed for the proposed soil borrow Area I to* ***demonstrate*** *that revegetation is feasible to minimize surface erosion. Borrow Area I is located in a sensitive environmental area for reestablishing prompt re-vegetation after disturbance which will adversely affect soil stabilization and result in maximum surface erosion.*

Findings:

This section of the submittal does not fulfill the requirements of:

R645-301-553.252, R645-301-232.200 and R645-301-233, The proposed Borrow Area I does not meet the Division's criteria as the source for **best available material** (substitute topsoil) **within the permit area**. Soil suitability must be **demonstrated** to the Division to clearly show that the resulting soil medium is equal to, or more

suitable for sustaining vegetation than the existing Greybull soil series located in borrow Area H.

R645-301-330 (including 331 and 333), R645-301-341.300, In order to achieve successful reclamation of lands affected by coal mining activities, use of the proposed soil borrow (Area I) needs to be in accordance with state regulations to **minimize surface disturbance** and to **disturb the smallest practicable area**. Greenhouse studies, field trials, or equivalent methods are needed for soil borrow Area H and proposed Area I to **demonstrate** that revegetation is feasible to minimize surface erosion.

RECLAMATION PLAN

DISPOSAL OF COAL MINE WASTES

Regulatory Reference: R645-301-542.730, R645-301-553.250.

Analysis:

Section 2.41, page 1, of the existing MRP states that piles of coal waste in the main plant area will be removed and deposited on the coarse refuse pile. The present proposal would allow the coal mine waste to remain in the main plant area, to be used by the owner of the industrial site.

The regulations clearly state that coal mine waste and refuse must be disposed of within the permit area and properly covered to protect the surface and underground water resource. Absent any information regarding this waste the Division must follow the regulations for its disposal. It is recommended that the Permittee sample the waste in question for its BTU rating, and acid/toxic properties.

Findings:

This section of the submittal does not fulfill the requirements of:

R645-301-542.730 and R645-301-553.250 - The coal mine waste located at the Main Plant area must be sampled for its quality and acid/toxic properties to allow the Division to debate its final disposition.

RECOMMENDATION:

The Division recommends that the Permittee provide at a minimum, preservation of a

portion of borrow Area B or C sufficient to provide the needed material volume (43,300 CY) to reclaim the coarse refuse, gob pile. In addition, Borrow Areas B and C contain the best available substitute topsoil material with the least amount of disturbance within the permit area.

cc: Mary Ann Wright
Daron Haddock
Paul Baker
Priscilla Burton
O:\007012.WEL\FINAL\97BRSOIL.RAD